

**Appl. No. 09/418,418**  
**Amtd. dated July 19, 2005**  
**Reply to Office action of April 21, 2005**

### **REMARKS/ARGUMENTS**

At the time of the Office action of April 29, 2005, Claims 1-12 and 14-23 were pending in this patent application. An appeal of the final rejection of these claims on June 29, 2004 was filed and an appeal brief was filed on October 18, 2004. By the Office action of April 29, 2005, the Examiner withdrew the finality of the Office action and issued nonfinal rejections of the claims. Applicants assume that the Examiner has reopened prosecution.

In the Office action of April 29, 2005, claims 1-12 and 14-23 were rejected on various grounds as discussed below. The Applicants respectfully traverse the rejections. Reconsideration is requested.

#### **I. OFFICE ACTION PARAGRAPH 4**

Claims 1-4, 20, and 21-23 were rejected under 35 U.S.C. 103(a) as being obvious over Chakrabarti et al. (Automatic resource compilation by analyzing hyperlink structure and associated text, April 14, 1998) in view of Page (U.S. Pat. No. 6,285,999 B1).

Regarding claims 1, 20, and 21, the independent claims, the Examiner alleges that Chakrabarti teaches:

- ranking the expert documents in accordance with the search query by hub score;
- ranking target documents pointed to by the ranked expert documents (authority page and ranking page); and
- returning a results list based on the ranked expert documents.

The Examiner notes that Chakrabarti does not explicitly teach forming a set of expert documents from the set of all hypertext documents crawled without reference to the search query, but asserts that Page discloses forming a set of expert documents from the set of all hypertext documents crawled without reference to the search query (col. 2, lines 51-54).

The Examiner then asserts that it would have been obvious to include crawling and ranking the crawled documents based on the measure of importance into Chakrabarti in order to organize relevancy of documents in the world wide web to assist the user in the search process.

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The Applicants disagree with the Examiner's interpretations of Chakrabarti and Page. The Applicants submit that there is no suggestion in the either reference to combine the references. The Applicants submit that no combination of the references would result in a system that would make the present invention obvious.

As noted by the Examiner, Chakrabarti does not teach forming a set of experts from all documents searched without reference to a search topic. In fact, Chakrabarti does not teach forming a set of experts at all. Chakrabarti only teaches ranking of subsets of documents that are produced in topic based searches, i.e., ranking documents that relate to a particular topic.

As described in Section 2, Algorithm, Chakrabarti starts his process by submitting a topic to a term based search engine, in this case AltaVista. From this search Chakrabarti obtains a root set of about 200 documents containing the topic term(s). The root set is augmented by adding all documents that point to the root set and those that are pointed to by the root set. Augmenting is done twice to include all documents within a link distance of two. In Section 2.2, Chakrabarti suggests that multiple augmented sets for various topics may be stored. Chakrabarti also states that the principal bottleneck in his process will be crawling the web and extracting all the root and augmented sets. Chakrabarti, in essence, teaches forming a topic based subdivision or index of the web.

Chakrabarti in Section 1.1 notes that the use of linking to rank documents is known. Chakrabarti then teaches various prior art link based algorithms that he uses to build his specific link based ranking system. In Section 2, Chakrabarti discloses his specific linked based ranking system that he uses to rank the augmented sets previously produced, i.e., sets already limited to a particular topic. In this description, Chakrabarti describes modifications made "so as to maintain the focus on the topic." He notes further that the mechanism described in Section 2.1 assumes "that this topic-dependent link weighting has been done."

Therefore, all of the searching and ranking taught by Chakrabarti includes or is based on a specific topic. Chakrabarti never teaches forming a set of expert documents without reference to a topic. Chakrabarti does not teach ranking

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expert documents, but instead ranking a topic based subset of documents. Chakrabarti returns a set of ranked documents based on his augmented set that includes documents pointing to his root set, the root set itself, and documents pointed to by the root set. Chakrabarti does not teach returning a results list based on the ranked target documents, that would correspond to a portion of, but not all of, his augmented list.

Page teaches a particular algorithm for assigning nodes in a link based database. Ranking is link based, as discussed above with reference to Chakrabarti. The portion of Page cited by the Examiner, col. 2, lines 51-54, merely states that the invention is based on use of the linked structure of a database to assign a rank to each document. As noted in the following sentence, this is in addition to determining relevance based on the intrinsic content and the anchor text, both of which are topic based. Thus Page does not teach ranking all documents crawled without reference to a search topic. Page teaches an improvement to topic based searching.

At col. 7, lines 37-55, Page teaches an implementation in which a user's homepage and/or bookmarks are given a large initial importance. This indicates to the system that the homepage and/or bookmarks contain subjects, i.e., topics, of high importance. This trains the system to recognize pages related to the person's interests, i.e., certain topics. Thus Page teaches including topics in the ranking process, not ranking without reference to the topic.

At col. 8, lines 6-20 another application is described in which "a web crawler explores the web and creates an index of the web content, as well as a directed graph of nodes corresponding to the structure of hyperlinks. The nodes of the graph (i.e., pages of the web) are then ranked according to importance as described above in connection with various exemplary embodiments of the present invention." Thus the teaching of Page is essentially the same as the teachings of Chakrabarti, i.e., after forming a subset of web documents based on a topic, a link based ranking system is used to rank the subset of documents.

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Thus, neither Chakrabarti nor Page teach forming a set of expert documents from the set of all hypertext documents crawled without reference to the search query. Therefore no combination of Chakrabarti and Page could teach forming a set of expert documents from the set of all hypertext documents crawled without reference to the search query.

In claims 1, 20 and 21, the set of expert documents is first formed without reference to a topic or search term. In the second step the expert documents are ranked based on the search query. Then target documents pointed to by the ranked experts are ranked and results based on the ranking of the target documents are returned. Neither Chakrabarti nor Page teach such a process.

No combination of Chakrabarti and Page could teach such a process, since they both start with topic based searches. The only reasonable combination of Chakrabarti and Page would be to substitute Page's specific link based ranking system for the ranking system taught by Chakrabarti. That ranking system is used to rank a topic based subset of documents.

In view of these substantial differences, the Applicants submit that the independent Claims 1, 20 and 21 are patentable over the prior art. Since the remaining claims are all dependent claims which further limit Claims 1, 20 or 21, the Applicants submit that the dependent claims are also patentable over the prior art.

## **II. CONCLUSION**

In the course of the foregoing discussions, Applicants may have at times referred to claim limitations in shorthand fashion, or may have focused on a particular claim element. This discussion should not be interpreted to mean that the other limitations can be ignored or dismissed. The claims must be viewed as a whole, and each limitation of the claims must be considered when determining the patentability of the claims. Moreover, it should be understood that there may be other distinctions between the claims and the cited art which have yet to be raised, but which may be raised in the future.

Applicants respectfully request reconsideration and that a timely Notice of Allowance be issued in this case. It is believed that no extensions of time or fees

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are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 C.F.R. § 1.136(a), and any fees required (including fees for net addition of claims) are hereby authorized to be charged to Hewlett-Packard Development Company's Deposit Account No. 08-2025.

Respectfully submitted,



Albert C. Metrailler  
PTO Reg. No. 27,145  
CONLEY ROSE, P.C.  
(713) 238-8000 (Phone)  
(713) 238-8008 (Fax)  
ATTORNEY FOR APPLICANTS

HEWLETT-PACKARD COMPANY  
Intellectual Property Administration  
Legal Dept., M/S 35  
P.O. Box 272400  
Fort Collins, CO 80527-2400